

SAFETY DATA SHEET

SECTION 1: Identification of the substance/mixture and of the company/undertaking

1.1 Product identifier

Product name: Eastman(TM) DMCD

Product No.: EAN 907570. 03041-00, P0304101, P03041N4, P03041NT, P03041NZ, P03041N2, E0304101, E0304102

Synonyms, Trade Names: 03041-00

Additional identification

Chemical name: dimethyl 1,4-cyclohexanedicarboxylate
CAS-No.: 94-60-0

1.2 Relevant identified uses of the substance or mixture and uses advised against

Identified uses: Chemical Intermediate

Uses advised against: None known.

1.3 Details of the supplier of the safety data sheet

Manufacturer / Supplier

Eastman Chemical Company
200 South Wilcox Drive
Kingsport, TN 37660-5280 US
+14232292000

Visit our website at www.EASTMAN.com or email emnmsds@eastman.com

1.4 Emergency telephone number:

For emergency health, safety, and environmental information, call 1-423-229-4511 or 1-423-229-2000.

For emergency transportation information, in the United States: call CHEMTREC at 800-424-9300 or call 423-229-2000.

SECTION 2: Hazards identification

WARNING!
CAUSES EYE IRRITATION
PEROXIDE FORMER

SECTION 3: Composition/information on ingredients

3.1 / 3.2 Substances / Mixtures

General information:

Chemical name	Concentration	Additional identification	Notes
dimethyl 1,4-cyclohexanedicarboxylate	93 - 100%	CAS-No.: 94-60-0 EC No.: 202-347-5	

methyl 1,4-cyclohexanedicarboxylate	0 - 7%	CAS-No.: 32529-79-6	
methyl 4-methylcyclohexanecarboxylate	0 - 5%	CAS-No.: 51181-40-9	

* All concentrations are percent by weight unless ingredient is a gas. Gas concentrations are in percent by volume.

This substance has workplace exposure limit(s).

PBT: persistent, bioaccumulative and toxic substance.

vPvB: very persistent and very bioaccumulative substance.

SECTION 4: First aid measures

4.1 Description of first aid measures

Inhalation:	Move to fresh air. Treat symptomatically. Get medical attention if symptoms persist.
Eye contact:	Immediately flush with plenty of water for at least 15 minutes. If easy to do, remove contact lenses. Get medical attention.
Skin contact:	Wash with soap and water. Get medical attention if symptoms occur.
Ingestion:	Seek medical advice.

4.2 Most important symptoms and effects, both acute and delayed:

No data available.

4.3 Indication of any immediate medical attention and special treatment needed

Hazards:	None known.
Treatment:	Treat symptomatically.

SECTION 5: Firefighting measures

General fire hazards: None known.

5.1 Extinguishing media

Suitable extinguishing media: Water spray. Dry chemical. Carbon Dioxide. Foam.

Unsuitable extinguishing media: None known.

5.2 Special hazards arising from the substance or mixture:

Forms peroxides of unknown stability. Minimize exposure to air. If peroxide formation is suspected, do not open or move container. After opening, purge container with nitrogen before reclosing. Addition of water or appropriate reducing materials will lessen peroxide formation.

5.3 Advice for firefighters

Special Fire Fighting Procedures: None known.

Special protective equipment for fire-fighters: Self-contained breathing apparatus and full protective clothing must be worn in case of fire.

SECTION 6: Accidental release measures

- 6.1 Personal precautions, protective equipment and emergency procedures:** Wear appropriate personal protective equipment.
- 6.2 Environmental precautions:** Avoid release to the environment.
- 6.3 Methods and material for containment and cleaning up:** Absorb spill with vermiculite or other inert material, then place in a container for chemical waste. Large Spillages: Flush spill area with water spray. Prevent runoff from entering drains, sewers, or streams. Dike for later disposal.
- Notification Procedures:** In the event of a spill or accidental release, notify relevant authorities in accordance with all applicable regulations.

SECTION 7: Handling and storage:

- 7.1 Precautions for safe handling:** Avoid contact with eyes. Wash thoroughly after handling. Minimize exposure to air. After opening, purge container with nitrogen before reclosing. Periodically test for peroxide formation on long-term storage. Do not allow to evaporate to near dryness. Do not distill to near dryness.
- 7.2 Conditions for safe storage, including any incompatibilities:** Keep container closed.
- 7.3 Specific end use(s):** Chemical Intermediate

SECTION 8: Exposure controls/personal protection

8.1 Control parameters Occupational exposure limits

If exposure limits have not been established, maintain airborne levels to an acceptable level.

8.2 Exposure controls

Appropriate engineering controls:

Good general ventilation (typically 10 air changes per hour) should be used. Ventilation rates should be matched to conditions. If applicable, use process enclosures, local exhaust ventilation, or other engineering controls to maintain airborne levels below recommended exposure limits. If exposure limits have not been established, maintain airborne levels to an acceptable level.

Individual protection measures, such as personal protective equipment

General information: Eye bath. Washing facilities.

Eye/face protection:	Wear safety glasses with side shields (or goggles).
Skin protection	
Hand protection:	It is a good industrial hygiene practice to minimize skin contact.
Other:	No data available.
Respiratory Protection:	If engineering controls do not maintain airborne concentrations below recommended exposure limits (where applicable) or to an acceptable level (in countries where exposure limits have not been established), an approved respirator must be worn. In the United States of America, if respirators are used, a program should be instituted to assure compliance with OSHA Standard 63 FR 1152, January 8, 1998. Respirator type: Air-purifying respirator with an appropriate, government approved (where applicable), air-purifying filter, cartridge or canister. Contact health and safety professional or manufacturer for specific information.
Hygiene measures:	Observe good industrial hygiene practices.
Environmental Controls:	No data available.

SECTION 9: Physical and chemical properties

9.1 Information on basic physical and chemical properties

Appearance

Physical State:	Liquid
Form:	Liquid
Color:	Colorless
Odor:	Sweet
Odor Threshold:	No data available.
pH:	No data available.
Melting Point	18 - 22 °C
Boiling Point:	263 °C
Flash Point:	94 °C (Tag closed cup)
Evaporation Rate:	No data available.
Flammability (solid, gas):	No data available.
Flammability Limit - Upper (%):	No data available.
Flammability Limit - Lower (%):	No data available.
Vapor pressure:	13.2 mbar (13.2 °C)
Vapor density (air=1):	6.9
Specific Gravity:	1.10 (35 °C)
Solubility(ies)	
Solubility in Water:	Slightly Soluble
Solubility (other):	No data available.
Partition coefficient (n-octanol/water):	No data available.
Autoignition Temperature:	388 °C (ASTM E659)

Decomposition Temperature:	(DTA) No exotherm to boiling
Dynamic Viscosity:	No data available.
Kinematic viscosity:	No data available.
Explosive properties:	No data available.
Oxidizing properties:	No data available.

SECTION 10: Stability and reactivity

10.1 Reactivity:	May form peroxides of unknown stability.
10.2 Chemical stability:	Stable
10.3 Possibility of hazardous reactions:	Forms peroxides of unknown stability.
10.4 Conditions to avoid:	Incompatible materials. Contact with air.
10.5 Incompatible materials:	Strong oxidizing agents.
10.6 Hazardous decomposition products:	Carbon Dioxide. Carbon Monoxide.

SECTION 11: Toxicological information

Information on likely routes of exposure

Inhalation:	None known.
Ingestion:	None known.
Skin contact:	None known.
Eye contact:	Causes serious eye irritation.

11.1 Information on toxicological effects

Acute Toxicity

Oral

Product:	No data available.
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Specified substance(s)

dimethyl 1,4-cyclohexanedicarboxylate	Oral LD-50: (Rat, Male.): > 5,000 mg/kg Oral LD-50: (Rat, Female.): 2,812 mg/kg
methyl 1,4-cyclohexanedicarboxylate	No data available.
methyl 4-methylcyclohexanecarboxylate	No data available.

Dermal

Product:	No data available.
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Specified substance(s)	
dimethyl 1,4-cyclohexanedicarboxylate	Dermal LD-50: (Guinea Pig): > 10 ml/kg
methyl 1,4-cyclohexanedicarboxylate	No data available.
methyl 4-methylcyclohexanecarboxylate	No data available.

Inhalation

Product: No data available.

Specified substance(s)	
dimethyl 1,4-cyclohexanedicarboxylate	LC50 (Rat, 6 h): > 2.91 mg/l
methyl 1,4-cyclohexanedicarboxylate	No data available.
methyl 4-methylcyclohexanecarboxylate	No data available.

Repeated dose toxicity

Product: No data available.

Specified substance(s)	
dimethyl 1,4-cyclohexanedicarboxylate	No data available.
methyl 1,4-cyclohexanedicarboxylate	No data available.
methyl 4-methylcyclohexanecarboxylate	No data available.

Skin corrosion/irritation:

Product: No data available.

Specified substance(s)	
dimethyl 1,4-cyclohexanedicarboxylate	(Guinea Pig, 24 h): Slight
methyl 1,4-cyclohexanedicarboxylate	No data available.
methyl 4-methylcyclohexanecarboxylate	No data available.

Serious eye damage/eye irritation:

Product: No data available.

Specified substance(s)	
dimethyl 1,4-cyclohexanedicarboxylate	No data available.
methyl 1,4-cyclohexanedicarboxylate	No data available.

methyl 4-
methylcyclohexanecarbox-
ylate

No data available.

**Respiratory or skin
sensitization:**

Product: No data available.

Specified substance(s)

dimethyl 1,4-
cyclohexanedicarboxylate

No data available.

methyl 1,4-
cyclohexanedicarboxylate

No data available.

methyl 4-
methylcyclohexanecarbox-
ylate

No data available.

Germ cell mutagenicity

In vitro

Product: No data available.

Specified substance(s)

dimethyl 1,4-
cyclohexanedicarboxylate

No data available.

methyl 1,4-
cyclohexanedicarboxylate

No data available.

methyl 4-
methylcyclohexanecarboxyla
te

No data available.

In vivo

Product: No data available.

Specified substance(s)

dimethyl 1,4-
cyclohexanedicarboxylate

No data available.

methyl 1,4-
cyclohexanedicarboxylate

No data available.

methyl 4-
methylcyclohexanecarboxyla
te

No data available.

Carcinogenicity

Product: No data available.

Specified substance(s)

dimethyl 1,4-
cyclohexanedicarboxylate

No data available.

methyl 1,4-
cyclohexanedicarboxylate

No data available.

methyl 4-
methylcyclohexanecarboxyla
te

No data available.

Reproductive toxicity

Product: No data available.

Specified substance(s)

dimethyl 1,4-
cyclohexanedicarboxylate No data available.
methyl 1,4-
cyclohexanedicarboxylate No data available.
methyl 4-
methylcyclohexanecarboxyla
te No data available.

Specific target organ toxicity - single exposure

Product: No data available.

Specified substance(s)

dimethyl 1,4-
cyclohexanedicarboxylate No data available.
methyl 1,4-
cyclohexanedicarboxylate No data available.
methyl 4-
methylcyclohexanecarboxyla
te No data available.

Specific target organ toxicity - repeated exposure

Product: No data available.

Specified substance(s)

dimethyl 1,4-
cyclohexanedicarboxylate No data available.
methyl 1,4-
cyclohexanedicarboxylate No data available.
methyl 4-
methylcyclohexanecarboxyla
te No data available.

Aspiration hazard

Product: No data available.

Specified substance(s)

dimethyl 1,4-
cyclohexanedicarboxylate No data available.
methyl 1,4-
cyclohexanedicarboxylate No data available.
methyl 4-
methylcyclohexanecarboxyla
te No data available.

Other adverse effects: No data available.

SECTION 12: Ecological information

12.1 Toxicity

Acute toxicity

Fish

Product: No data available.

Specified substance(s)

dimethyl 1,4-cyclohexanedicarboxylate LC-50 (Fathead Minnow, 96 h): 23 mg/l

methyl 1,4-cyclohexanedicarboxylate No data available.

methyl 4-methylcyclohexanecarboxylate No data available.

Aquatic invertebrates

Product: No data available.

Specified substance(s)

dimethyl 1,4-cyclohexanedicarboxylate LC-50 (daphnid, 48 h): > 100 mg/l

methyl 1,4-cyclohexanedicarboxylate No data available.

methyl 4-methylcyclohexanecarboxylate No data available.

Chronic Toxicity

Fish

Product: No data available.

Specified substance(s)

dimethyl 1,4-cyclohexanedicarboxylate No data available.

methyl 1,4-cyclohexanedicarboxylate No data available.

methyl 4-methylcyclohexanecarboxylate No data available.

Aquatic invertebrates

Product: No data available.

Specified substance(s)

dimethyl 1,4-cyclohexanedicarboxylate No data available.

methyl 1,4-cyclohexanedicarboxylate No data available.

methyl 4-methylcyclohexanecarboxylate No data available.

Toxicity to Aquatic Plants

Product: No data available.

Specified substance(s)

dimethyl 1,4-cyclohexanedicarboxylate EC-50 (Alga, 72 h): > 124.6 mg/l
NOEC: (Alga, 72 h): > 124.6 mg/l

methyl 1,4-cyclohexanedicarboxylate	No data available.
methyl 4-methylcyclohexanedicarboxylate	No data available.

12.2 Persistence and degradability

Biodegradation

Product: No data available.

Specified substance(s)

dimethyl 1,4-cyclohexanedicarboxylate	No data available.
methyl 1,4-cyclohexanedicarboxylate	No data available.
methyl 4-methylcyclohexanedicarboxylate	No data available.

Biological Oxygen Demand:

Product No data available.

Specified substance(s)

dimethyl 1,4-cyclohexanedicarboxylate	No data available.
methyl 1,4-cyclohexanedicarboxylate	No data available.
methyl 4-methylcyclohexanedicarboxylate	No data available.

Chemical Oxygen Demand:

Product No data available.

Specified substance(s)

dimethyl 1,4-cyclohexanedicarboxylate	No data available.
methyl 1,4-cyclohexanedicarboxylate	No data available.
methyl 4-methylcyclohexanedicarboxylate	No data available.

BOD/COD ratio

Product No data available.

Specified substance(s)

dimethyl 1,4-cyclohexanedicarboxylate	No data available.
methyl 1,4-cyclohexanedicarboxylate	No data available.
methyl 4-methylcyclohexanedicarboxylate	No data available.

12.3 Bioaccumulative potential

Product: No data available.

Specified substance(s)

dimethyl 1,4-
cyclohexanedicarboxylate No data available.
methyl 1,4-
cyclohexanedicarboxylate No data available.
methyl 4-
methylcyclohexanecarboxyla
te No data available.

12.4 Mobility in soil: No data available.

Known or predicted distribution to environmental compartments

dimethyl 1,4-
cyclohexanedicarboxylate No data available.
methyl 1,4-
cyclohexanedicarboxylate No data available.
methyl 4-
methylcyclohexanecarboxylate No data available.

12.5 Results of PBT and vPvB assessment: No data available.

dimethyl 1,4-
cyclohexanedicarboxylate No data available.
methyl 1,4-
cyclohexanedicarboxylate No data available.
methyl 4-
methylcyclohexanecarboxylate No data available.

12.6 Other adverse effects: No data available.

SECTION 13: Disposal considerations

13.1 Waste treatment methods

General information: No data available.

Disposal Methods: Dispose of waste and residues in accordance with local authority requirements. Incinerate. Since emptied containers retain product residue, follow label warnings even after container is emptied.

SECTION 14: Transport information

Important Note: Shipping descriptions may vary based on mode of transport, quantities, package size, and/or origin and destination. Consult your company's Hazardous Materials/Dangerous Goods expert for information specific to your situation.

DOT

Class not regulated

IMDG - International Maritime Dangerous Goods Code

Class 3, Packing Group III when liquid has a flash point at or above 61°C and is offered for transport or is transported at or above its flash point; otherwise, not regulated.

IATA

Class not regulated

SECTION 15: Regulatory information

15.1 Safety, health and environmental regulations/legislation specific for the substance or mixture:

This product has been classified in accordance with hazard criteria of the Controlled Products Regulations and the MSDS contains all the information required by the Controlled Products Regulations.

WHMIS (Canada) Status: controlled

WHMIS (Canada) Hazard Classification: D/2/B

SARA 311-312 Hazard Classification(s):

immediate (acute) health hazard

US EPCRA (SARA Title III) Section 313 - Toxic Chemical List

NONE

OSHA: hazardous

TSCA (US Toxic Substances Control Act): This product is listed on the TSCA inventory. Any impurities present in this product are exempt from listing.

DSL (Canadian Domestic Substances List) and CEPA (Canadian Environmental Protection Act): This product is listed on the DSL. Any impurities present in this product are exempt from listing.

AICS / NICNAS (Australian Inventory of Chemical Substances and National Industrial Chemicals Notification and Assessment Scheme): This product is listed on AICS or otherwise complies with NICNAS.

MITI (Japanese Handbook of Existing and New Chemical Substances): This product is listed in the Handbook or has been approved in Japan by new substance notification.

ECL (Korean Toxic Substances Control Act): This product is listed on the Korean inventory or otherwise complies with the Korean Toxic Substances Control Act.

Philippines Inventory (PICCS): This product is listed on the Philippine Inventory or otherwise complies with PICCS.

Inventory of Existing Chemical Substances in China: All components of this product are listed on the Inventory of Existing Chemical Substances in China (IECSC).

SECTION 16: Other information

HMIS® Hazard Ratings: Health - 2, Flammability - 1, Chemical Reactivity - 1

HMIS® rating involves data interpretations that may vary from company to company. They are intended only for rapid, general identification of the magnitude of the specific hazard. To deal adequately with the safe handling of this material, all the information contained in this MSDS must be considered.

Revision Information: Not relevant.

Key literature references and sources for data: No data available.

Training information: No data available.

Issue Date: 02/01/2013

SDS No:

Disclaimer: This information is provided without warranty. The information is believed to be correct. This information should be used to make an independent determination of the methods to safeguard workers and the environment.